



# Impact of COVID-19 disease on the attendance of diabetic patients to diabetes clinics in primary health care, State of Kuwait.

Homoud Al-Zuabi<sup>1</sup>, Wafaa Al-Kandari<sup>2</sup>, Medhat El-Shazly<sup>3</sup>, Ahmed H Nasser<sup>4</sup>, Dalal Al Hajeri<sup>5</sup>

<sup>1</sup> Consultant Family medicine, Head of Chronic Diseases Clinic Team, Head of General Medical Council, MOH, Kuwait.

<sup>2</sup> MRCGP, Consultant Family Medicine, Member of Chronic Diseases Clinic Team, Head of Jaber Hospital Quarantine Center, MOH, Kuwait.

<sup>3</sup> MD, Consultant of Public Health, Department of Planning, MOH, Kuwait and Professor of Health Statistics, Medical Research Institute, Alexandria University, Egypt.

<sup>4</sup> Nursing Diploma, Farwaniya Hospital, MOH, Kuwait.

<sup>5</sup> MRCGP-Int, Diabetes Diploma St George University of London, Consultant Family Physician, Kifan Primary Health Center, MOH, Kuwait.

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### \*Corresponding Author

Medhat El-Shazly

**E-mail:** medshaz@yahoo.com

**Phone:** +965 66612524

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## ABSTRACT

**Background:** There is a global impact of coronavirus disease COVID-19 on routine care for chronic diseases. Diabetes was one of the most impacted conditions due to reduction in access to care.

**Objectives:** This study aimed to detect the impact of COVID-19 on the attendance of diabetic patients to primary health care diabetic centers.

**Methods:** Electronic records study were used to extract the number of diabetic patients visited the diabetes clinics in all primary health care centers in Kuwait during the period March-June in 2019 and 2020.

**Results:** There 27.6% decline in the number of attendants to diabetic centers in primary health care during March to June in 2020 as compared with same period in 2019. The drop reached its lowest peak in May and it was more prominent in the Capital and Ahmadi health regions. In June 2020, the number of attendants began to increase.

**Conclusions:** COVID-19 had a negative impact on the health care for diabetic patients during March to June 2020.

## INTRODUCTION:

The world is facing unprecedented challenges in the face of a global pandemic. The fast propagation of the COVID-19 led to its definition as a pandemic on 13 March 2020 by the WHO, <sup>[1,2]</sup> as it met the epidemiological criteria and had infected many persons in most countries over the world. <sup>[3,4]</sup> The world, in a globalized manner, is facing an extraordinary public health emergency. The main public health recommendation was to remain at home and stay safe within it. <sup>[5]</sup> Serious symptoms that can possibly result in death are observed in older people and those with underlying medical conditions such as cardiovascular, pulmonary disease and diabetes. <sup>[6]</sup>

Recent studies showed that there is a global impact of coronavirus disease on routine care for chronic diseases. Diabetes was one of the most impacted conditions due to reduction in access to care. It is important that routine care continues in spite of the pandemic, to avoid a rise in non-COVID-19-related morbidity and mortality. <sup>[7]</sup> Global guidance on confinement measures for the prevention of COVID-19 have a particular emphasis on vulnerable populations which include people with diabetes. These recommendations are coherent to avoid the spread of COVID-19 infection, but are in contradiction with comprehensive diabetes care, which requires regular patient-provider interactions for patient education, prescriptions and possible management of complications. <sup>[8,9]</sup>

In Kuwait, the first 3 cases of COVID-19 was diagnosed on 24/02/2020. Consequently, the government took subsequent measures to face the disease as closure of the airports, schools, gyms, restaurants, cinemas and cafes as well as partial, regional and total curfews. The Ministry of Health decided to reduce the staff in the medical centers, close some centers, transform some center for receiving and treatment of patients with COVID-19. On 4/7/2020 the Ministry of Health in Kuwait formulated a committee for “**Restarting non-communicable disease clinics**”. It was responsible for developing an action plan and establishing timetable for the gradual return of non-communicable chronic disease clinics in primary health

care (PHC) centers in coordination with the concerned authorities as well as follow up the implementation of the agreed plan. This study aims to compare the number of diabetic patients visited diabetes clinics in PHC during the period from March to June in 2019 and 2020 to determine the impact of COVID-19 on routine care for diabetic patients in PHC centers in State of Kuwait.

## SUBJECTS AND METHODS:

PHC in Kuwait is provided through 104 centers distributed within 5 administrative health regions corresponding to the number of populations in each region (2019). All health centers in the five health regions participated in the study. A cross-sectional approach was used in this survey which depends on electronic record study to extract the number of diabetic patients visited the diabetes clinics in all PHC centers in Kuwait during March, April, May, and June 2019 and 2020 by age, gender and nationality.. Official letters were sent to heads of all PHC centers to provide the required data. Comparison of these numbers during the period from March to June in 2019 and 2020 will be estimated using Microsoft Excel to calculate the percentage change which assumed to be due to the pandemic of COVID-19.

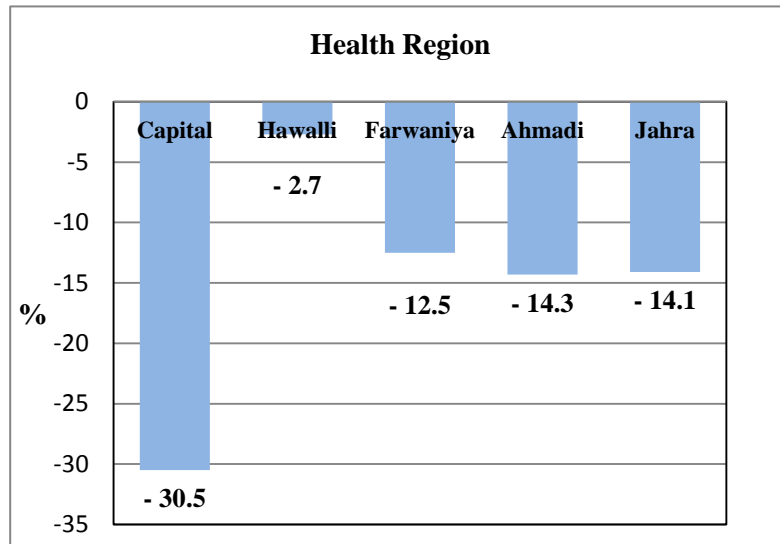
All the necessary approvals for carrying out the research were obtained. The Ethical Committee of the Kuwaiti Ministry of Health approved the research.

## RESULTS:

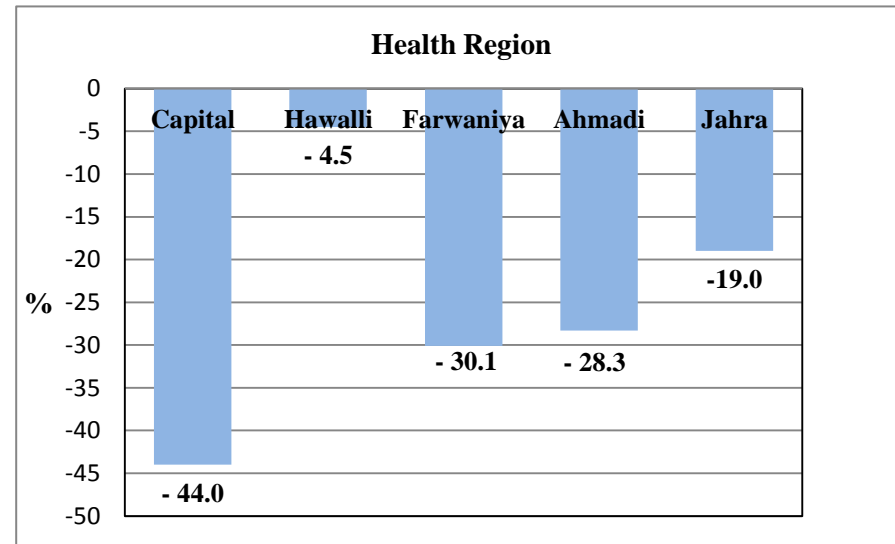
Reviewing PHC statistics in Kuwait revealed that during the period March – June 2019 the number of diabetic patients who attended diabetic clinics in PHC centers was 321,218. This number decreased during the same period in 2020 to reach 232,713 with a percentage decrease of 27.6%. This drop of the number of attendants to diabetic clinics was more prominent among male (31.6%) than female (21.5%) patients

**Table 1: Percentage change of the number of visits to primary health care diabetes centers during March – June 2019 and 2020.**

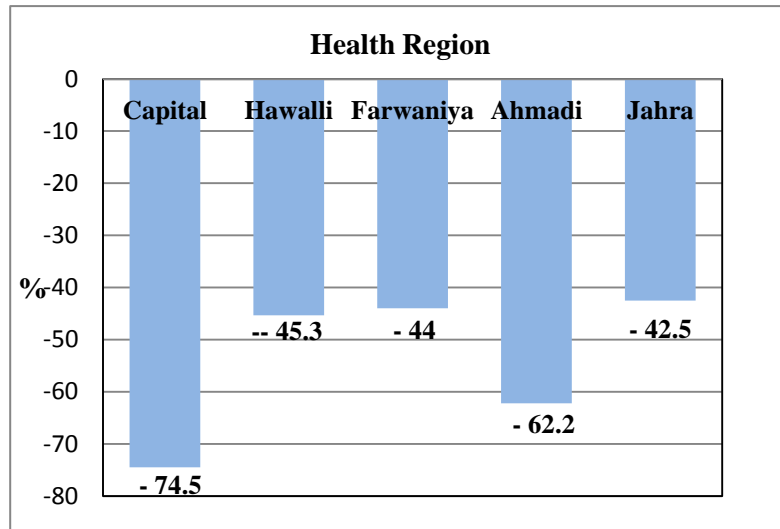
Year	Males	Females	Total
2019	193,602	127,616	321,218
2020	132,486	100,227	232,713
Difference	-61,116	-27,389	-88,505
% change	-31.6	-21.5	-27.6



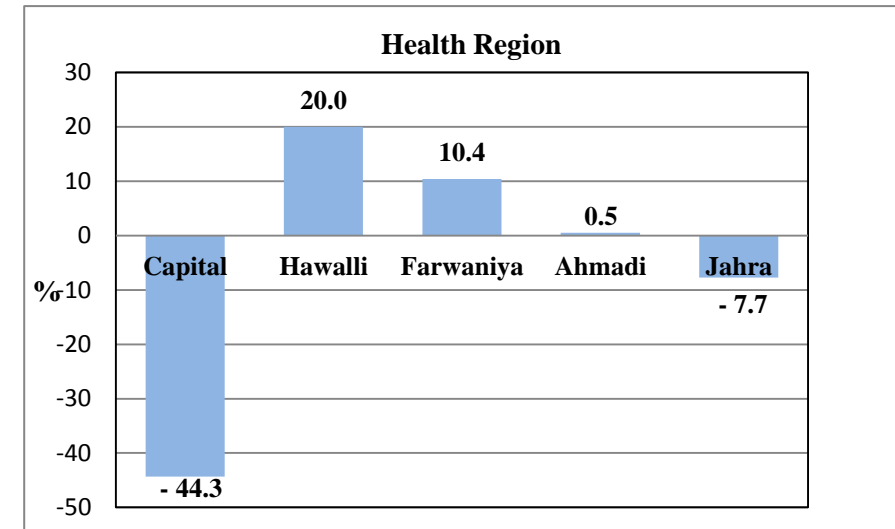
March



April



May



June

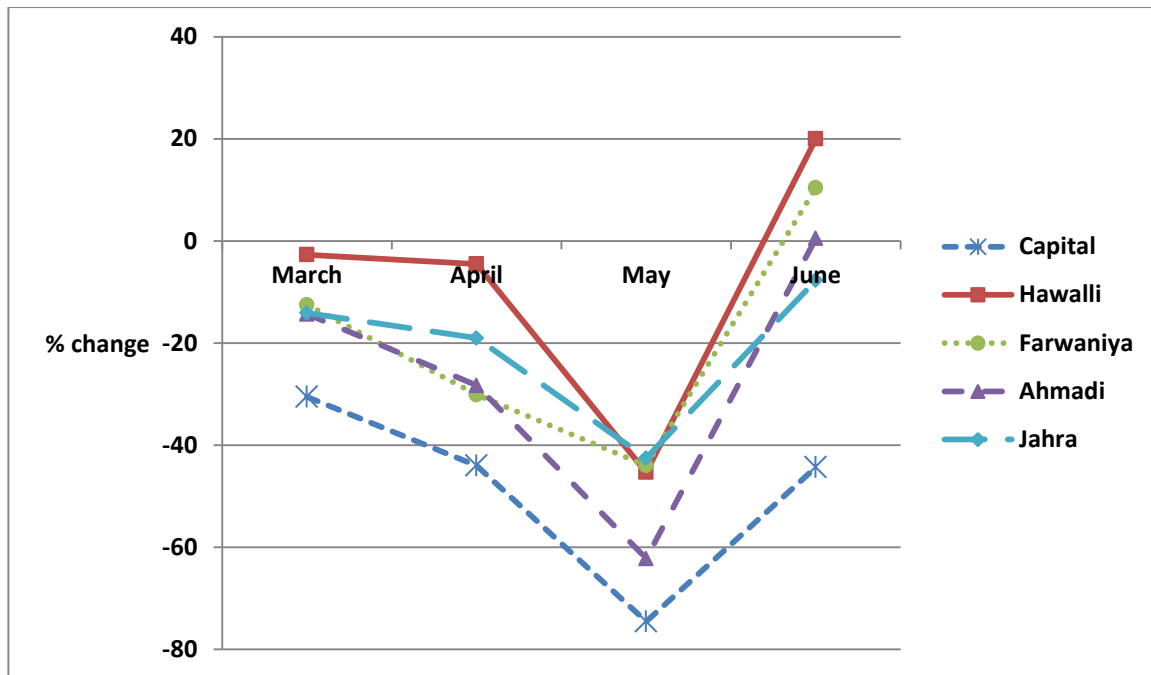
Figure (1): Percentage change of number of visits to diabetes clinic in PHC centers by health regions during March - June 2019 and 2020

In all administrative health regions, there is a decrease in the number of attendants to the diabetes clinics in PHC center during 2020 particularly in May. In the Capital Health Region, the percentage change in the number of attendance to diabetes clinics during 2019 and 2020 was -30.5% in March, -44.0% in April, -74.5% in May and -44.3% in June. The corresponding figures for Jahra Health Region were -14.1%, -19.0%, -42.5% and -7.7%.

The same pattern was seen in the other three health regions except that during June 2020 the number of attendance overcome that in 2019.

In Hawalli, the percentage changes in March, April, May and June were -2.7%, -4.5%, -45.3% and 20.0%; whereas the corresponding figures in Farwaniya were -12.5%, -30.1%, -0.44% and 10.4%.

In Ahmadi Region, there was a percentage decrease of attendance during March, April and May (-14.3%, -28.3%, -62.2%). In June the number of attendance was nearly the same in 2019 and 2020 with percentage increase equal 0.5%.



**Figure (2): Percentage change of number of visits to diabetes clinic in PHC centers by health regions during March - June 2019 and 2020**

## DISCUSSION:

People with chronic conditions are not only affected by the COVID-19 pandemic in a direct manner, but also in an indirect manner. The COVID-19 pandemic disrupts entire societies, including the routine health care systems. The unprecedented scale of this pandemic provided a significant challenge to modern medical care, requiring a collective shift towards the acute care for COVID-19 patients with severe presentation in hospitals, as well as the optimization of infection control in the community. This comprehensive effort to contain the pandemic and minimize the subsequent morbidity and mortality has affected both the continuity and quality of care for patients with chronic diseases. [10,11] To our knowledge, this is the first study that examined

the effect of COVID-19 on health care for diabetic patient in Kuwait. This study revealed two main results:

### – Drop of the number of attendants to diabetic center:

The present study showed that the number of attendances of diabetic patients to diabetic centers in PHC decreased markedly from March 2020 till reaching the lowest peak in May 2020. After that, from June 2020, the number started to increase gradually but not in all health regions. This drop was attributed to the policy of reducing staff in the medical centers as shown in table 2.

**Table 2: Number of medical staff working in diabetic centers in primary health care during March and May 2020.**

Health region	March	May	% Decrease
Capital	168	86	48.9%
Hawalli	89	57	36.0%
Farwaniya	126	75	40.5%
Ahmadi	99	75	24.2%
Jahra	64	58	9.3%
Total	546	351	35.7%

It was notable that reducing the number of staffs in diabetes clinics in PHC centers in different health regions led to far patients' appointments at these clinics, which ultimately led to a decrease in the number of patients visiting these clinics. Another reason for having few numbers of patients at the diabetes clinic was reducing the number of clinics due to closing some health centers of PHC under the laws issued by the Ministry to reduce the number of employees or reduce the number of the workforce in those centers. In addition, changing the function of some health centers and transforming them to centers for receiving and treating patients with Covid-19 had an impact on the number of patients at these regions. Also, it was worth noting that one of the reasons for the decline in the number of patients at the clinic was the patients' fear of close interpersonal contact in clinics due to the Covid-19, and their adherence to social distancing by staying at home and avoid interpersonal contact except in emergency cases that require leaving their houses for fear of being infected with the Coronavirus, which may negatively affects their health due to their lack of immunity as a result of their chronic diseases. Furthermore, the state's general laws had an impact on the number of patients that visit the clinic, such as the laws of total, partial and regional curfews that began on March 22, 2020

Our results went with that of other studies. The comprehensive effort to contain the pandemic and minimize the subsequent morbidity and mortality has affected both the continuity and quality of care for patients with chronic diseases.<sup>[11]</sup> Resources at all levels have shifted away from chronic disease management and prevention during the outbreak, and the lock-down of many services has translated into reduced access, a decrease in referrals and reduced hospitalizations of patients with non-COVID19 pathology.<sup>[12]</sup> Scattered reports suggest chronic patients have postponed health care seeking, some of them because of the fear of getting infected with the coronavirus.<sup>[13]</sup>

Among the services that have been provided and worth mentioning was the service of medicine delivery by firefighting and civil defense teams to the patients during periods of total and partial curfew. It was one of the factors affecting in general to reduce the number of patients in diabetes clinics in PHC centers, and upon

the end of the curfew imposed by the state, this service was stopped.

In June 2020, the number of visits to diabetic clinics began to increase gradually. This was because the end of curfew and holding the service of delivering the medicine to patients at homes. Further, the decision to reopen outpatient clinics in hospitals and primary health care centers, and the electronic appointment reservations also contributed to the increase or return of patients to the clinic and the increase in attendance rates.

– **Variation in the percentage drop of the number of attendance to diabetic centers among the different health regions:**

The variations in the numbers of patients who visit the diabetes clinic in the different health regions in the State of Kuwait could be mainly due to the regional curfew that included many regions in three governorates. In Farwaniya governorate the rate of appointments after the total curfew has fallen to 44% compared to the same month in the previous year. In Ahmadi governorate, 62% decline in the number of visits was recorded in the same period. Also, in Hawalli, a sharp decline in the number of appointments by 45.3% was recorded. The law of total lockdown of the aforementioned regions continued until the end of May 2020, which led to the continued reduction in the number of visitors till May.

After the cancellation of the total regional lockdown in general and the partial lockdown timings were modified to be from 7 pm until 5 am, the number of visitors to clinics increased, as shown in figure 2. It is noticeable that in Farawaniya and Hawalli health regions, the number of patients increased significantly in the month of June, due to the suspension of the regional curfew in these two regions and the attendance of the delayed patients for their monthly medicines.

In parallel to the epidemic response, efforts to ensure existing healthcare services for diabetic patients, especially primary care, should be supported to avoid health consequences that might be worse than the epidemic itself.<sup>[14]</sup> Therefore the committee for **“Restarting non-communicable disease clinics in Kuwait”** developed an action plan and timetable for the gradual return of non-communicable chronic disease

clinics in PHC centers in coordination with the concerned authorities as well as follow up the implementation for this plan through establishment of three protocols of action: NCD home visit protocol, NCD telehealth protocol and OPD protocol. These protocols will be explained in details in further manuscripts.

**CONFLICT OF INTEREST:** None

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